

Crassulaceae A. P. de Candolle
(Stonecrop Family)

Succulent *herbs* to shrubs; stem often with cortical or medullary vascular bundles; with crassulacean acid **metabolism (CAM)**; tannins present; often with alkaloids, sometimes cyanogenic. Hairs simple, but plants more commonly glabrous and glaucous. **Leaves alternate**, opposite, or whorled, sometimes in a basal rosette, simple or rarely pinnately compound, entire to crenate, dentate or serrate, **succulent**, with pinnate venation, but veins often obscure; ~~stip~~**lacking**. Inflorescences **determinate**, sometimes reduced to solitary flower, terminal or axillary. Flowers usually bisexual, radial, lacking a hypanthium. Sepals usually 4 or 5, distinct to connate. Petals usually 4 or 5, distinct to connate (and then forming a \pm tubular corolla), imbricate. **Stamens 4-10**; filaments distinct to slightly connate, free or adnate to corolla; anthers opening by terminal pores; pollen grains tricolporate. **Carpels usually 4 or 5**, distinct to slightly connate at base; ovaries superior, with parietal placentation (or axile at base, if carpels fused); stigmas minute. Each carpel subtended by a scale-like nectar-producing gland. Ovules few to numerous in each carpel. **Fruit an aggregate of follicles**, rarely a capsule (Figure 8.53).

Floral formula: $\overline{4-5}, \overline{4-5}, \overline{4-10}, \overline{4-5}; \text{follicles}$

Distribution and ecology: Widespread from tropical to boreal regions; plants very often of arid habitats.

Genera/species: 35/1500. **Major genera:** *Sedum* (450), *Crassula* (300), *Echeveria* (150), and *Kalanchoe* (125). These, along with *Diamorpha*, *Dudleya*, *Graptapetalum*, *Lenophyllum*, and *Villadia* occur in the continental United States and/or Canada.

Economic plants and products: *Sedum* (stonecrop), *Echeveria*, *Kalanchoe*, and *Sempervivum* (houseleek) are grown as ornamentals because of their distinctive succulent leaves.

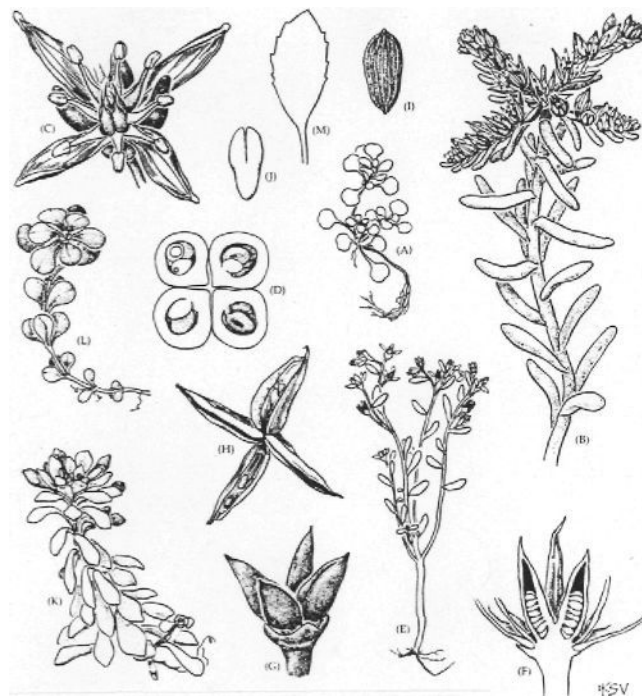


Figure 8.53 Crassulaceae. (A-D) *Sedum pulchellum*: (A) overwintering rosette (x 0.75); (B) flowering shoot (x 1.5); (C) flower (x 8); (D) cross-section through four carpels of gynoecium (x 30). (E-J) *S. pusillum*: (E) habit of mature plant (x 1.5); (F) immature follicles in longitudinal section, note nectaries (solid black) at base of carpels (x 9); (G) immature follicle (x 1.5); (H) mature, dehiscent follicles (x 1.5); (I) seed (x 35); (J) embryo (x 35). (K) *S. glaucophyllum*: leafy shoot (x 1.5). (L) *S. ternatum*, leafy shoot (x 0.75). (M) *S. telephioides*: outline of leaf (x 0.75). (From Sponberg 1978, *J. Arnold Arbor.* 59: p.206.)